

Appl. No. 10/735,613
Amendment dated: July 2, 2007
Reply to OA of: March 2, 2007

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-13(canceled).

14(currently amended). A permanent magnet ring comprising a plurality of unit permanent magnets, each having a cylindrical shape, a flat shape, or a disc shape, a predetermined number of said unit permanent magnets being magnetically attracted to each other so as to be formed into a ring shape;

wherein each of said unit permanent magnets comprises a neodymium iron boron magnet core and a plated layer formed on the surface thereof;

wherein said each unit permanent magnet is a uniaxial anisotropic magnet in which an N pole or an S pole is formed on a first side surface of said uniaxial anisotropic magnet orthogonal to an easily magnetizing direction, while an S pole or an N pole is formed on a second side surface of said uniaxial anisotropic magnet opposite to said first side surface, said easily magnetizing direction is formed at a time of sintering a raw material of the neodymium iron boron magnet in a magnetic field, said N and S poles are magnetized along said easily magnetizing direction after sintering, and said first and second side surfaces are formed into curved surfaces; and

wherein a predetermined number of said unit permanent magnets are magnetically attracted to each other in a line contact manner on the curved first and second side surfaces on which said N and S poles are formed by magnetizing along said easily magnetizing direction after sintering, and the S pole or the N pole is formed, thereby forming a ring shape having a predetermined size; and

wherein a magnetic flux from the magnetic poles of each of said unit permanent uniaxial anisotropic magnets, which are magnetically attracted to each other in a line contact manner, forms a closed magnetic path along the circumference of the

permanent magnet ring and a leakage magnetic flux acts on the area inside of the permanent magnet ring.

15(currently amended). A permanent magnet ring comprising a plurality of unit permanent magnets, each having a spherical shape, a predetermined number of said unit permanent magnets being magnetically attracted to each other so as to be formed into a ring shape;

wherein each of said unit permanent magnets comprises a neodymium iron boron magnet core and a plated layer formed on the surface thereof;

wherein said each unit permanent magnet is a uniaxial anisotropic magnet in which an N pole or an S pole is formed on a side surface of said uniaxial anisotropic magnet orthogonal to an easily magnetizing direction, while an S pole or an N pole is formed on another side surface of said uniaxial anisotropic magnet opposite to said first side surface, said easily magnetizing direction is formed at a time of sintering a raw material of the neodymium iron boron magnet in a magnetic field, said N and S poles are magnetized along said easily magnetizing direction after sintering, and said first and second side surfaces are formed into curved surfaces; and

wherein a predetermined number of said unit permanent magnets are magnetically attracted to each other in a point contact manner on the curved first and second side surfaces on which said N and S poles are formed by magnetizing along said easily magnetizing direction after sintering, and the S pole or the N pole is formed, thereby forming a ring shape having a predetermined size; and

wherein a magnetic flux from the magnetic poles of each of said unit permanent uniaxial anisotropic magnets, which are magnetically attracted to each other in a line contact manner, forms a closed magnetic path along the circumference of the permanent magnet ring and a leakage magnetic flux acts on the area inside of the permanent magnet ring.

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16(previously presented). A permanent magnet ring as claimed in any one of claims 14 or 15, wherein each of said unit permanent magnets further comprises a transparent siliceous coating layer formed over said plated layer formed on said neodymium iron boron magnet core.